

**U.S. Department of the Interior
Bureau of Land Management
White River Field Office
220 E Market St
Meeker, CO 81641**

ENVIRONMENTAL ASSESSMENT

NUMBER: DOI-BLM-CO-110-2010-0226-EA

CASEFILE/PROJECT NUMBER: COC-060732

PROJECT NAME: Williams 7 APD's and new pad Federal RG 23-23-198

LEGAL DESCRIPTION: T1S-R98W-Sec.23 NESW; Sixth Principal Meridian

APPLICANT: Williams Production RMT Co.

ISSUES AND CONCERNS: Is the proposal consistent with terms set forth in Williams' winter wildlife MOU? Does development pressure impact cattle utilization of rangeland resources? Does the proximity to Natural Soda Inc.'s active sodium solution operations impact Natural Soda?

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Background/Introduction: The well pad location occurs on Colorado Plateau Semiarid Benchlands and Canyonlands and is codominated by sagebrush shrubland and sagebrush/grassland mix. The range is classified by the USDA as a Rolling loam range site and by the Colorado Division of Wildlife (CDOW) as an area which provides winter range to elk and critical winter range to mule deer. CDOW winter range timing limitations apply. The site is located within the Vaughn, Boone/Mantle Ranch grazing pasture, and Williams Production RMT Co. Ryan Gulch oil and gas lease. Characterized as a Rolling loam range site, Piceance fine sandy loam would typically occur at the proposed location.

Proposed Action: The BLM would authorize Williams Production RMT Co to construct a new well pad, which would initially disturb 7.2 acres, and drill seven gas wells. The authorization would allow for 7.2 acres of surface disturbance to construct the well pad and stormwater features, 3.2 acres for construction of the new 3452' BLM Local Road, which has a maximum total disturbance width of 40', and 6.2 acres to construct the pipeline. The existing right-of-way (ROW) would be amended and 4517' of new pipeline corridor would be cleared to accommodate two 4" polylines for water and one up-to-16" steel line for the product. A summary of the proposed disturbance to construct the well pad is as follows:

Table 1: Proposed Surface Disturbance for Well Pad

Well Pad	250 x 450	2.48
Production Pad	200 x 75	0.34
Temporary Living Quarters	145 x 56	0.19
Well Pad		3.01
Well Pad plus Stormwater Features		7.2

The development of the well pad with stormwater features, the access road, and pipeline would result in 13.5 acres of disturbance.

A summary of the proposed disturbance to construct the access road and pipeline is as follows:

Table 2: Proposed Surface Disturbance for Road and Right-of-Way

Access Road	3452 x 40	3.2
Construction ROW for Pipeline	4517 x 60	6.2
Permanent Pipeline ROW	4517 x 30	3.2
Disturbance during construction		9.4
Disturbance during life of project		6.3

The applicant proposes to install up to 12-400 bbl tanks to collect produced water and condensate. Freshwater would be utilized for well drilling, well completions, and dust control at the following rates: 35000 bbls of freshwater for fracing, 8100 bbls for drilling, and 7000 bbls for dust control. The operation would involve the short-term, temporary use of a reserve pit, drill cuttings pit, and a frac pit. The operator would allow fluids to evaporate in the reserve pit before burial, up to one year, and would commence interim reclamation work following the reserve pit closure. The proposes to build a 145' x 56' Temporary Living Quarters off the edge of the well pad to allow for compliance with OSHA requirements for safe distances from drilling equipment.

No Action Alternative: The well pad would not be constructed and the seven wells would not be drilled, leaving the location unchanged from its current condition.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD: None.

PURPOSE & NEED FOR THE ACTION: The purpose of the proposed action is to manage the exploration and development of mineral resources on Public Lands in a manner that avoids, minimizes, reduces, or mitigates potential impacts to other resource values.

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: White River Record of Decision and Approved Resource Management Plan (ROD/RMP).

Date Approved: July 1, 1997

Decision Number/Page: Pages 2-5

Decision Language: “Make federal oil and gas resources available for leasing and development in a manner that provides reasonable protection for other resource values.”

**AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES /
MITIGATION MEASURES:**

STANDARDS FOR PUBLIC LAND HEALTH: In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, threatened and endangered species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in specific elements listed below:

INTERDISCIPLINARY TEAM ANALYSIS RECORD CHECKLIST

TABLE 3. DETERMINATION OF STAFF:

Determination	Resource	Rationale for Determination*
Natural, Biological and Cultural Resources		
PI	Air Quality	See Air Quality Section Below
PI	Soils	See the Soils Section Below
PI	Wastes (hazardous or solid)	The proposed action could result in the accidental release of hazardous or harmful chemicals to the soil, water, or air, and unmitigated could lead to exposure and acute or chronic toxicity to vegetation, wildlife, livestock, or people.
PI	Water Quality (Surface/Ground)	See the Water Quality Section Below
NP	Wetlands/Riparian Zones	Privately-owned portions of Yellow Creek, which is the nearest known system supporting riparian vegetation, is separated from the project area by approximately 2.5 miles of ephemeral channel. The nearest BLM-administered reach is nearly six channel miles downstream from the project area. With the application of Best Management Practices (BMPs) associated with soil erosion there is no reasonable likelihood that fugitive sediments would have any influence on the function or condition of the Yellow Creek channel or its associated riparian characteristics.
PI	Vegetation	See Vegetation section below.
PI	Invasive, Non-native Species	See Invasive, Non-native Species section below.
NP	Threatened, Endangered, and Sensitive Plant Species	The proposed action area is located approximately 1.2 miles from the nearest population of <i>Physaria congesta</i> , a federally listed threatened plant species. There are no mapped potential, suitable or occupied threatened plant habitats within 600 meters of the proposed project. <i>P. congesta</i> habitat is primarily associated with outcrops of the Green River formation, which do not occur within 600 meters of the proposed project. The project is expected to have no impact on special status plant species.
NP	Threatened, Endangered, and Sensitive Animal Species	There are no animals listed, proposed or candidate to the Endangered Species Act, or BLM-sensitive species, that are known to inhabit or derive important use from the project area.
PI	Migratory Birds	See Migratory Bird section below.
NP	Wildlife, Aquatic	The lower reaches of Yellow Creek, representing the nearest system supporting higher-order aquatic vertebrate populations, is separated from the project area by over thirteen channel miles. With the application of BMPs associated with soil erosion there is no reasonable likelihood that fugitive sediments would have any influence on the function or condition of the Yellow Creek channel, its aquatic wildlife or associated habitats.
PI	Wildlife, Terrestrial	See Terrestrial Wildlife section below.
NP	Wild Horses	Project is located outside of the Piceance-East Douglas Herd Management Area. Wild horses were gathered in this area in 2006 and no wild horses have been inventoried in the project area during the 2010 inventory.
PI	Cultural Resources	Resources within 308 meters to protect.
PI	Paleontology	Project located in PFYC 5 formation.

NP = not present in the area impacted by the proposed or alternative actions

NI = present, but not affected to a degree that detailed analysis is required

PI = present with potential for impact analyzed in detail in the EA

NATURAL, BIOLOGICAL, AND CULTURAL RESOURCES

AIR QUALITY

Affected Environment: The proposed action is located in rural northwest Colorado in the White River Basin, more than ten miles from special designation air sheds or non-attainment areas. Industrial facilities in White River Basin include coal mines, soda ash mines, natural gas processing plants and power plants. Due to these industrial uses, increased population and oil and gas development, emissions of air pollutants in the White River Basin due to exhaust and dust are likely to increase into the future. Despite increases in emissions, overall air quality conditions in the White River Basin are likely to continue to be good for some time due to effective atmospheric dispersion and limited transport of air pollutants from outside the area.

Although specific air quality monitoring data are not available for the project area, data have been collected in the region. BLM recently established two regional air quality monitoring sites, one in Rangely and one in Meeker, that measure criteria pollutants, specifically ozone, dust and nitrogen oxides. The cities of Grand Junction (southwest), Steamboat Springs (northeast), Rifle (southeast) and Parachute (south) all host air quality monitoring stations. Available monitoring data at these stations indicate that the area is likely to be in the attainment category, meaning that the ambient concentrations of criteria pollutants are less than the applicable air quality standards (National Ambient Air Quality Standards and (NAAQS) and Colorado Ambient Air Quality Standards (CAAQS)). However it should be noted, not all criteria pollutants have been monitored at each station and there is not continuous monitoring of all criteria pollutants at any of the stations. Also, differences in the atmospheric conditions, proximity to emissions, and climate at any of these monitoring sites can make data from these sites less relevant to the project's location.

The White River Basin and the nearby portions of the Colorado River Basin has been classified as either attainment or unclassified for all air pollutants (NAAQS and CAAQS standards), and most of the area has been designated for the prevention of significant deterioration (PSD) Class II. Because the historic air quality in the White River Basin has been good, small changes in air quality may have noticeable localized effects, especially on visibility.

Environmental Consequences of the Proposed Action: The proposed action includes building 1 well pad, drilling 7 wells, installation of pipelines, and the construction of an access road.

Construction of well pads involves removing top soil, constructing pads using cut and fill techniques, and installing stormwater BMPs. Building new access roads involves stripping the topsoil and windrowing it to the side, digging the barrow ditches and shaping the road, replacing the topsoil on cut/fill slopes and barrow ditches, and reclamation/stormwater control efforts. During these construction phases dust production is likely, especially when conditions are dry and/or windy. Once the wells go into interim reclamation all the roads should have the topsoil redistributed and stabilized and the pad should be recontoured and stabilized.

As vegetation establishes in the reclaimed areas, the only dust production that is likely is due to vehicles traveling on the access road and pad to service the wells. Therefore, dust production is most likely to be greatest during drilling and construction activities. With maintaining roads to BLM Manual Section 9113 standards and with the application of dust suppressants, dust generation should be reduced, but will still occur on access roads during production and be more pronounced during dry and windy conditions.

Soil disturbance resulting from construction, heavy equipment, and drill rigs is expected to cause increases in fugitive dust and inhalable particulate matter, specifically PM₁₀ and PM_{2.5}, in the project area and immediate vicinity. In addition, increases in the following criteria pollutants: carbon monoxide, ozone (secondary pollutant), nitrogen dioxide, and sulfur dioxide would also occur due to combustion of fossil fuels during construction and drilling activities. Non-criteria pollutants such as visibility, nitric oxide, air toxics (e.g. benzene) and total suspended particulates (TSP) may also experience slight, temporary increases as a result of the proposed action (no national ambient air quality standards have been set for non-criteria pollutants). Additional low, short-term impacts to air quality may occur due to venting of gas from the wells, pits and tanks. Even with these increased pollutants, this project is unlikely to result in an exceedance of NAAQ and CAAQ standards and is likely to be under PSD thresholds.

Environmental Consequences of the No Action Alternative: No impacts would occur.

Mitigation: All access roads will be treated with water and/or a chemical dust suppressant during construction and drilling activities so that there is not a visible dust trail behind vehicles. All vehicles will abide by company or public speed restrictions during all activities. If water is used as a dust suppressant, there should be no traces of oil or solvents in the water and it should be properly permitted for this use by the State of Colorado. Only water needed for abating dust should be applied; dust abatement should not be used as a water disposal option under any circumstances.

SOILS (includes a finding on Standard 1)

Affected Environment: The proposed action does not impact soils identified as fragile, with landslide potential and/or steep slopes. According to 10 meter Digital Elevation Model data there will not be any disturbance on slopes greater than 25%. The classification of soils that will be impacted by new construction for the pads, roads and pipelines are shown in the table below.

Table 4. Soil Classifications (acres potentially impacted based on a 30m buffer)

Soil Classification	Range Site Description	Acres
Piceance fine sandy loam, 5-15% slopes	Rolling Loam	14
Yamac Loam, 2-15% slope	Rolling Loam	31
Rentsac channery loam, 5-50% slopes	Pinyon Juniper woodlands	8

The majority of the disturbance will occur in Yamac Loam and Piceance fine sandy loam on relatively moderate slopes. The erosion hazard on these soils is slight to high. There is pipeline construction in Rentsac channery loam soils that have a moderate to very high hazard for erosion.

Environmental Consequences of the Proposed Action: Potential impacts to soils from the proposed action include removal of vegetation, mixing of soil horizons, soil compaction, increased susceptibility to erosion, loss of topsoil productivity and contamination of soils with petroleum constituents. If reclamation is successful and spills are contained and cleaned up, impacts from this project will be minor and localized to disturbed areas. Impacts could become pronounced if drilling and construction activities continue when soils are saturated or erosion resulting from the project continues without being addressed by Best Management Practices (BMPs).

The construction of the access roads, pipeline installation and construction the well pad would result in the loss of vegetative cover, increasing the potential for water erosion and soil loss during excavation. Compaction due to construction activities would reduce aeration, permeability and water-holding capacities of the soils. An increase in surface run-off could be expected from these areas, potentially causing increased sheet, rill and gully erosion. Decreased soil productivity could result from the loss of topsoil or unsuccessful revegetation efforts that leave soils further exposed to erosional processes. Grading, trenching, and backfilling activities may cause mixing of the soil horizons, which could diminish soil fertility, reducing the potential for successful revegetation. Segregation and reapplication of surface soils would result in the mixing of shallow soil horizons, resulting in a blending of soil characteristics and types. This blending would modify physical characteristics of the soils, including structure, texture and rock content, which could lead to reduced permeability and increased runoff from these areas.

The primary effect of surface disturbances on soil resources is in increasing erosion. Increased erosion of soils would also directly reduce vegetative productivity. Erosion potential for the soil types that would be disturbed in the project area ranges from slight to very high. The well pad is in soils with a slight hazard for erosion. If the seedbed is not stabilized, revegetation efforts will not be successful and erosion could occur.

Contamination of surface and subsurface soils can occur from leaks or spills of oil, produced water, and condensate liquids from wellheads, produced water sumps and condensate storage tanks. Leaks or spills of drilling and hydraulic fracturing chemicals, fuels and lubricants could also result in soil contamination. Such leaks or spills could compromise the productivity of the affected soils. Depending on the size and type of spill, the impact to soils would primarily consist of the loss of soil productivity. Typically, contaminated soils would be removed and disposed of in a permitted facility or would be bioremediated in place using techniques such as excavating and mulching to increase biotic activities that would break down petrochemicals into inert and/or common organic compounds.

Environmental Consequences of the No Action Alternative: No impacts to soils would likely occur.

Mitigation: All construction and drilling activity shall cease when soils or road surfaces become saturated to a depth of three inches unless there are safety concerns or if activities are otherwise approved by the Authorized Officer (AO).

In order to protect rangeland health standards for soils, erosion features such as riling, gullying, piping and mass wasting on the surface disturbance or adjacent to the surface disturbance as a result of this action will be addressed immediately after observation by contacting the AO and submitting a plan to assure successful soil stabilization with BMPs to address erosion problems.

Finding on the Public Land Health Standard for upland soils: With mitigation this action is unlikely to reduce the productivity of soils impacted by surface disturbing activities, thus land health standards are likely to be met.

WASTES, HAZARDOUS OR SOLID

Affected Environment: There are no known hazardous or other solid wastes on the subject lands. No hazardous materials are known to have been used, stored, or disposed of at sites included in the project area.

Environmental Consequences of the Proposed Action: The proposed activities will use regulated materials and will generate some solid and sanitary wastes. The potential for harm to the environment is presented by risks associated with spills of fuel, oil and/or hazardous substances during oil and gas operations. Accidents and mechanical breakdown of machinery are also possible. Substances used in the hydraulic fracturing process may be harmful to human health or the environment. However, freshwater-bearing formations are prevented from coming into contact with these substances through the cementing and placement of surface casing, *see* 43 CFR §3162.5-2(d).

Environmental Consequences of the No Action Alternative: No hazardous or other solid wastes would be generated under the no-action alternative.

1. All lessees and/or operators shall comply with all federal, state and/or local laws, rules, and regulations, including but not limited to onshore orders and notices to lessees, addressing the emission of and/or the handling, use, and release of any substance that poses a risk of harm to human health or the environment.
2. All lessees and/or operators shall employ, maintain, and periodically update to the best available technology(s) aimed at reducing emissions, fresh water use and hazardous material utilization, production and releases through all phases of oil and gas exploration, development, and production.
3. When drilling to set the surface casings, drilling fluid will be composed of fresh water, bentonite and/or a benign lost circulation material only – that is a **lost circulation material that does not pose a risk of harm to human health or the environment**, (e.g. cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs or cotton hulls).
4. All substances that pose a risk of harm to human health or the environment shall be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to produced water, shall be stored in appropriate containers and in secondary containment systems at 110% of the largest vessel's capacity. Secondary fluid containment systems, including but not limited to tank batteries shall be lined with a minimum 24 mil impermeable liner.

5. The operator shall submit a current Spill Prevention Control and Countermeasures Plan and a current spill/release contingency plan to the Bureau of Land Management's White River Field Office prior to engaging in construction activities.
6. Construction sites and all facilities shall be maintained in a sanitary condition at all times; waste materials shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.
7. As reasonable and prudent lessees/operators in the oil and gas industry, acting in good faith, all lessees/operators will comply with the reporting requirements of Notice to Lessees-#3A; and, regardless of a substance's status as exempt or nonexempt and regardless of fault, will report all emissions or releases that may pose a risk of harm to human health or the environment to the Bureau of Land Management's White River Field Office at (970) 878-3800.
8. As reasonable and prudent lessees/operators in the oil and gas industry, acting in good faith, all lessees/operators will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the Bureau of Land Management's White River Field Office may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.
9. With the acceptance of an authorization, the commencement of operations under an authorization, or the running of thirty calendar days from the issuance of an authorization, whichever occurs first, and during oil and gas exploration, development and production under an authorization, the lessee/operator, and through the lessee/operator, its agents, employees, subcontractors, successors and assigns, stipulate and agree to indemnify, defend and hold harmless the United States Government, its agencies, and employees from all liability associated with the emission or release of substances that pose a risk to human health or the environment.

WATER QUALITY, SURFACE AND GROUND (includes a finding on Standard 5)

Affected Environment: Surface Water: This project is located in the Yellow Creek drainage that drains into the White River. The following water segments may be impacted by this project:

Table 5. Water Quality Classification Table*

Segment	Segment Name	Protected Beneficial Uses		
		Aquatic Life	Recreation	Agriculture
13b	Mainstem of Yellow Creek to the confluence with Barcus Creek and all tributaries to Yellow Creek from the source to the White River	Warm 2	Non-Contact Recreation	Yes

* Colorado Department Of Public Health And Environment, Water Quality Control Commission, Regulation No. 37 Classifications and Numeric Standards For Lower Colorado River Basin, Effective June 30, 2010

The mainstem of Yellow Creek is protected for warm water aquatic life (Warm 2). The Warm designation means the classification standards would be protective of aquatic life normally found in waters where the summer weekly average temperature frequently exceeds 20 °C. The Warm 2 designation means that it has been determined that these waters are not capable of sustaining a wide variety of warm water biota. These waters would also have standards that are protective from primary contact recreation and agriculture.

Groundwater: The project area is located near in an area of recharge for Yellow Creek. Areas of recharge for this area are along the Roan Cliffs, Calamity Ridge and Cathedral Bluffs. This recharge from precipitation generally moves in shallow groundwater and contributes to contact springs, but also expresses itself in surface flows during spring melt and rainstorms. A portion of annual precipitation infiltrates to deeper bedrock aquifers that mixes with older water and may contribute to springs in Yellow Creek between Barcus Creek and Greesewood Creek, called Stinking Spring and Lambert Spring. Groundwater occurs in both bedrock and alluvial aquifers beneath Yellow Creek and its tributaries along valley bottoms and are comprised of unconsolidated sand, gravel, silt, and clay. Tributaries to Yellow Creek may have interrupted flow characteristics (i.e. some reaches are ephemeral with water moving in the alluvium and other reaches there is surface expression) as a result of groundwater recharge characteristics.

Contact springs are common in the area and are often the result of upper bedrock aquifers consisting of fractured, lean oil shales and siltstones of the Green River formation above and below the Mahogany Zone or from fractured marlstone of the saturated portion of the overlying Uinta Formation. The permeability of these sediments can vary dramatically vertically and horizontally thereby resulting in variable porosity and piping that forms groundwater springs. There are productive water zones in the Upper Parachute Creek Group in the Green River Formation sandwiching the Mahogany, called the A-groove and B-groove with the B-groove below the Mahogany. These groundwater zones are characterized by high horizontal conductivity. In general, the B-groove has higher salinity than the A-groove. Dramatic changes in pressure or porosity due to leached mineral zones can cause drilling fluids to be “lost” to the formation. Leached mineral zones contain features such as fractures and solution cavities. Contact springs associated with the A and B groove aquifers in the Upper Parachute Group may have high horizontal transmissivity from their recharge zones and it is not uncommon to have less than a year or in some cases less than a week movement of shallow groundwater to the surface via fractures faults, and depleted pore space in bedrock materials. Therefore contamination from surface sources or shallow groundwater can quickly be transported to surface waters in this area.

Perched groundwater zones occur locally within the Uinta Formation. These perched zones can occur in the ridges between surface water drainages and may be manifested as springs and seeps above the valley floor in outcrop areas. Recharge areas for most of these springs and groundwater zones is on the top of the Douglas Plateau and Roan Cliffs, to the south of the project area.

Environmental Consequences of the Proposed Action: The proposed action includes building 1 well pad, drilling 7 wells, installation of pipelines, and the construction of an access

road. The construction of pads will involve removing top soil, earthwork, reclamation and installing stormwater BMPs. Building the new access roads will involve stripping the topsoil and windrowing it to the side, digging the barrow ditches and shaping the road, replacing the topsoil on cut/fill slopes and barrow ditches, reclamation and stormwater control efforts.

Surface Waters: Clearing, grading, and soil stockpiling activities associated with the proposed action would alter overland flow and natural groundwater recharge patterns. Potential impacts include surface soil compaction caused by construction equipment and vehicles, which would likely reduce the soil's ability to absorb water, increasing the volume and rate of surface runoff, which in turn would cause increased surface erosion.

This project is in the headwaters of Yellow Creek, therefore impacts to surface waters would be during storm events or due to changes in groundwater. Runoff associated with storm events may increase sediment/salt loads in surface waters down gradient of the disturbed areas. Sediment may be deposited and stored in minor drainages where it would be readily moved downstream during heavy convection storms. Some sediment from project activities may eventually be carried into Yellow Creek and ultimately to the White River. The distance to the White River would have an attenuating effect on the amount of sediment contributed by project activities to the river. Surface erosion would be greatest during the construction and early production phases of the project and would be controlled using BMPs for stormwater. It is unlikely this increase in sedimentation would be measurable in the White River.

The magnitude of the impacts to surface water resources from project activities depends on the proximity of the disturbance to drainage channels, slope aspect and gradient, degree and area of soil disturbance, soil character, duration of construction activities, and the timely implementation and success/failure of mitigation measures. Natural factors which attenuate the transport of sediment into creeks include water available for overland flow; the texture of the eroded material; the amount and kind of ground cover; the slope shape, gradient, and length; and surface roughness. These pads are located in relatively flat terrain (less than 25% slopes), therefore impacts are not likely from these activities to surface waters.

Impacts should they occur, would likely be greatest shortly after the start of construction activities and would likely decrease over time due to stabilization, reclamation, and revegetation efforts. Changes in surface hydrology from road construction would continue through the life of the project and may extend beyond the project life if roads are left in place. Successful reclamation and proper road design would go a long way towards reducing indirect impacts, especially after active construction and drilling activities are completed and interim reclamation is completed on the pad.

Groundwater: Known water bearing zones in the project area are generally above the Wasatch Formation. These include the contact springs, perched aquifers and groundwater zones described in the Affected Environment. Proposed surface casing would be below the top of the Wasatch Formation, thus ensuring continued integrity and functionality of the groundwater resources identified. If a surface casing fails, circulation is lost and/or cementing is poor, there is a potential for commingling of drilling water with waters from the upper and lower aquifers, or cross contamination of groundwater zones. The commingling of such water could result in

localized contamination of aquifers from more saline waters in deeper formations. With proper drilling and completion practices, mixing of lower aquifers with the upper or alluvial aquifers and the contamination of groundwater resources is unlikely.

Environmental Consequences of the No Action Alternative: No impacts identified.

Mitigation: Locate culverts or drainage dips in such a manner as to avoid discharge onto unstable terrain such as headwalls or slumps. Provide adequate spacing to avoid accumulation of water in ditches or road surfaces. Install culverts with adequate armoring of inlet and outlet. Patrol areas susceptible to road or watershed damage during periods of high runoff.

Keep road inlet and outlet ditches, catchbasins, and culverts free of obstructions, particularly before and during spring run-off. Routine machine-cleaning of ditches should be kept to a minimum during wet weather. Leave the disturbed area in a condition that provides drainage with no additional maintenance.

Culverts and waterbars should be installed according to BLM Manual 9113 standards and sized for the 10-year storm event with no static head and to pass a 25-year event without failing.

Finding on the Public Land Health Standard for water quality: It is unlikely that the access road and well pad construction, as well as drilling and production activities would exceed state water quality standards. Cumulative impacts from this activity and others may eventually impact sediment yields to the degree that they impact listing of Yellow Creek on the 303d list of Impaired Waters.

VEGETATION (includes a finding on Standard 3)

Affected Environment: The proposed pad, access road, and pipeline are located primarily on a mid seral Rolling Loam ecological site with a moderate level of pinyon juniper encroachment. Predominant vegetation throughout the project area is Wyoming big sagebrush with a native grass understory. The eastern third of the pipeline traverses a mid-seral pinyon juniper ecological site characterized by young and mid age Utah juniper. The herbaceous understory on these sites contains in part, western wheatgrass, streambank wheatgrass, junegrass, and winterfat.

Environmental Consequences of the Proposed Action: Initially, implementation of the proposed action would result in the temporary loss of approximately 2 AUMs of forage. After successful pipeline reclamation and interim reclamation of the well pad, the forage loss would be reduced to approximately 1 AUM. Throughout production, vegetation along the roadside would likely be unpalatable as forage due to dust resulting from vehicle traffic. After final reclamation of all disturbed areas there would likely be a slight increase in herbaceous vegetation for a number of years. Additionally, two primary impacts to the affected plant communities would/could occur as a result of access road, pad and pipeline construction: 1) the disturbed areas as a result of pipeline, access road and pad construction would accelerate the rate of plant community fragmentation. This impact would not be mitigated in the short term. 2) In terms of plant community composition, structure and function, the principal impact over the long term

would occur if cheatgrass or noxious weeds are allowed to establish and proliferate on the disturbed areas resulting from pad, pipeline and access road construction.

Environmental Consequences of the No Action Alternative: There would be no change from the present situation.

Mitigation: Promptly revegetate all disturbed areas not necessary for production including roadside and location cut and fill slopes with Native Seed mix #2. Woody debris will not be scattered on the pipeline until after seeding operations are completed.

Seed mixture rates are Pure Live Seed (PLS) pounds per acre. Drill seeding is the preferred method of application.

Table 6. Native Seed Mix #2

Species (Variety)	Lbs. PLS per Acre
Western wheatgrass (Rosanna)	2
Indian ricegrass (Nezpar)	1
Bluebunch wheatgrass (Whitmar)	2
Thickspike wheatgrass (Critana)	2
Green needlegrass (Lodorm)	1
Utah sweetvetch	0.5

If construction/development occurs between April 15 and November 15, the operator will be required to water or surface access roads to reduce airborne dust and damage to roadside vegetation communities.

All seed tags will be submitted to the designated natural resource specialist (NRS) within 14 calendar days from the time the seeding activities have ended via Sundry Notice. The sundry will include the purpose of the seeding activity (i.e., seeding well pad cut and fill slopes, seeding pipeline corridor, etc.). In addition, the sundry notice (SN) will include the well or well pad number associated with the seeding activity, if applicable, the name of the contractor that performed the work, his or her phone number, the method used to apply the seed (e.g., broadcast, hydro-seeded, drilled), whether the seeding activity represents interim or final reclamation, an estimate of the total acres seeded, an attached map that clearly identifies all disturbed areas that were seeded, and the date the seed was applied. The designated NRS for this project is Christi Barlow (Phone: (970) 878-3815; email: christina_barlow@blm.gov).

The designated NRS will be notified by email or phone 24 hours prior to beginning all reclamation activities associated with this project. Reclamation activities may include, but are not limited to, seed bed preparation that requires disturbance of surface soils, seeding, constructing exclosures (i.e., fences) to exclude livestock from reclaimed areas. The designated NRS for this project is Christi Barlow (Phone: (970) 878-3815; email: christina_barlow@blm.gov).

The designated NRS will be notified 24 hours prior to beginning all construction-related activities associated with this project that result in disturbance of surface soils via email or by phone. Construction-related activities may include, but are not limited to, pad and road

construction, clearing pipeline corridors, trenching, etc. Notification for all construction-related activities, regardless of size, that result in disturbance of surface soils as a result of this project is required. The designated NRS for this project is Christi Barlow (Phone: (970) 878-3815; email: christina_barlow@blm.gov).

In an attempt to track interim and final reclamation of federal actions related to the development of federal mineral resources, the operator shall submit Geographic Information System (GIS) data to the White River Field Office (WRFO) for any post construction (i.e., “as-built”) polygon feature that was included in the Application for Permit to Drill (APD) or Sundry Notice, and associated with the proposed action. GIS polygon features may include, but are not limited to, constructed access roads, existing roads that were upgraded, pipeline corridors, and well pad footprints. Geospatial data will be submitted as ArcView datasets (i.e., shapefiles or features), ArcInfo coverages, or as ArcView compatible data files (e.g., AutoCAD export .dwg files). All AutoCAD files must include the projection information and/or spatial (datum) reference to allow import into a spatially referenced GIS format. The preferred spatial reference for AutoCAD .dwg files is State Plane, Colorado North, NAD83, feet. GIS data shall be submitted electronically to BLM, WRFO Natural Resource Specialist, Brett Smithers (brett_smithers@blm.gov; Phone: [970] 878-3818) using the 1983 Geographic Coordinate System (NAD 83 datum). These data shall be submitted within 14 calendar days from the time when construction-related activities have ended for all geographic features associated with the proposed action. If the operator is unable to submit the required information within the specified time period, the operator shall notify the designated BLM contact person (see below) via email or by phone, and provide justification supporting an extension of the required data submission time period. Internal and external review of the reporting process and the adequacy of the associated information to meet established goals will be conducted on an on-going basis. New information or changes in the reporting process will be incorporated into the request, as appropriate. If the operator is unable to send the data electronically, the operator shall submit the data on compact disk(s) to:

BLM, White River Field Office
220 East Market Street
Meeker, Colorado 81641
Attn: Brett Smithers

If for any reason the location or orientation of the geographic feature associated with the proposed action changes, the operator shall submit updated GIS data to BLM, WRFO within 7 calendar days of the change. This information should be submitted via Sundry Notice.

A Reclamation Status Report will be submitted to the WRFO biannually for all actions that require disturbance of surface soils on BLM-administered lands as a result of the proposed action. Actions may include, but are not limited to, well pad and road construction, construction of ancillary facilities, or power line and pipeline construction. The Reclamation Status Report will be submitted by 15 April and 15 August of each calendar year, and will include the well number, API number, legal description, UTM coordinates, project description (e.g., well pad, pipeline, etc.), reclamation status (e.g., interim or final), whether the well pad or pipeline has been re-vegetated and/or re-contoured, date seeded, photos of the reclaimed site, estimate of acres seeded, seeding method (e.g., broadcast, drilled, hydro-seeded, etc.), and contact information for the person(s) responsible for developing the report. The report will be

accompanied with maps showing each point (i.e., well pad), polygon, or polyline (i.e., pipeline) feature that was included in the report. Geospatial data will be submitted using the NAD83 UTM, Zone 12 North projected coordinate system, the Transverse Mercator projection, and the GCS North American 1983 geographic coordinate system (NAD 83 datum). In addition, scanned copies of seed tags that accompanied the seed bags will be included with the report. Internal and external review of the WRFO Reclamation Status Report, and the process used to acquire the necessary information will be conducted annually, and new information or changes in the reporting process will be incorporated into the report.

The Reclamation Status Report will be submitted electronically via email and as a hard-copy to Natural Resource Specialist, Brett Smithers (brett_smithers@blm.gov). Please submit the hardcopy to:

BLM, White River Field Office
220 East Market Street
Meeker, Colorado 81641
Attn: Brett Smithers

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): Vegetation in the project area currently meets the Standard on a watershed basis and is expected to continue to meet the Standard in the future following implementation of the proposed action.

INVASIVE, NON-NATIVE SPECIES

Affected Environment: There are few or no noxious weeds associated with the sites of the proposed action. Houndstongue (*Cynoglossum officinale*) has been found in the general area but is not known to occur in the plant communities associated with the proposed action. The invasive alien cheatgrass (*Bromus tectorum*) occurs throughout the project area, primarily on areas of unvegetated earthen disturbance associated with roads, well locations and pipelines and in parts of the surrounding plant community.

Environmental Consequences of the Proposed Action: The proposed action would create about 13 acres or more of new earthen disturbance, which if it is not revegetated with desirable species and/or treated with herbicides to eradicate/control noxious weeds and cheatgrass, would likely be invaded by noxious weeds/cheatgrass. Noxious weeds could also spread from the project site to surrounding native rangelands resulting in a long term negative impact. The resulting proliferation of noxious weeds/cheatgrass could perpetuate a downward cycle of environmental degradation that would be largely irreversible. There would be a low likelihood of long term negative impacts if the proposed mitigation is properly implemented

Environmental Consequences of the No Action Alternative: There would be no change from the present situation.

Mitigation: The operator will be required to monitor the project area for the life of the project and eradicate/control noxious and invasive species which occur on site using materials and methods approved in advance by the Authorized Officer.

MIGRATORY BIRDS

Affected Environment: The proposed well location is situated along a ridge line. The project area is broadly encompassed by Wyoming big sagebrush and grassland types interspersed with piñon-juniper dominated ridges. Pad access will follow an existing, unimproved, unnumbered BLM road. Pipeline installation would require all new disturbance involving predominately Wyoming big sagebrush communities.

These lower elevation (~6500 feet) sagebrush, grassland and piñon-juniper communities provide suitable nesting habitat for many species of migratory birds during the breeding season (May 15 – July 15) including: western meadowlark, blue-gray gnatcatcher, spotted towhee and green-tailed towhee. Due to the isolated nature of the piñon-juniper woodlands involved (no expansive, continuous woodlands), piñon-juniper associates are likely present, but at far lower densities. The only Birds of Conservation Concern (BOCC; designated regionally by the US Fish and Wildlife Service (USFWS) for long-term declining population trends) within the project area are Brewer's sparrow (sagebrush communities) and potentially, juniper titmouse (piñon-juniper woodlands).

Although these locations have no open water or wetland areas that support or attract waterfowl use, the development of reserve pits that contain drilling fluids have attracted waterfowl use, at least during the migratory period (i.e., local records: mid-March through late May; mid-October through late November).

Environmental Consequences of the Proposed Action: The proposed action would directly remove 13.5 acres of predominately sagebrush and grassland communities. Under natural succession regimes these communities could take anywhere from several years (grassland types) to several decades (sagebrush communities) to return to preconstruction conditions (following effective reclamation). Prompt and effective reclamation on the pipeline and interim reclamation on the well pad would likely benefit grassland associates in the short-term. Indirectly the proposed action could impact an additional 84 acres (due mainly to new disturbance associated with pad and pipeline development) of functional forage and cover resources due to reductions in nest densities and avoidance of habitats associated with increased human activity, vehicle traffic and construction activities. Road upgrades would likely have less of an impact as nest densities generally tend to be reduced adjacent to existing corridors/disturbances.

Should construction activities take place during the migratory bird nesting season (generally May 15 – July 15), there would be greater chance of displacement of birds, nest abandonment and potential mortality (mainly of nestlings). Based on breeding bird densities in the White River Resource Area, the proposed action has the potential to displace around 40 nesting pair, which likely would be more generalized species, but may include some species of higher concern.

Construction activities prior to or after the nesting season would result in habitat loss (see above), but direct impacts to nesting activities would be avoided.

It has been brought to BLM's attention that in certain situations migratory waterfowl have contacted drilling or frac fluids (i.e., stored in reserve pits) during or after completion operations and are suffering mortality in violation of the Migratory Bird Treaty Act (MBTA). The extent and nature of the problem is not well defined, but is being actively investigated by the federal agencies and the companies. Until the vectors of mortality are better understood, management measures must be conservative and relegated to preventing bird contact with frac and drilling fluids that may pose a problem.

Environmental Consequences of the No Action Alternative: There would be no conceivable influence on migratory birds under the No Action Alternative.

Mitigation: The operator shall prevent use by migratory birds of reserve pits that store or are expected to store fluids which may pose a risk to such birds (e.g., migratory waterfowl, shorebirds, wading birds and raptors) during completion and after completion activities have ceased. Methods may include netting or other alternative methods that effectively prevent use and that meet BLM approval. It will be the responsibility of the operator to notify the BLM of the method that will be used to prevent use two weeks prior to when completion activities are expected to begin. The BLM approved method will be applied within 24 hours after completion.

WILDLIFE, TERRESTRIAL (includes a finding on Standard 3)

Affected Environment: The proposed location lies within big game severe winter range and as such is subject to RMP-approved timing limitations designed to limit disturbance during the core period of occupation (1 January to 30 April). In November 2010, the Colorado Division of Wildlife (CDOW), Williams, and BLM entered into a Memorandum of Understanding (MOU) (Williams Production RMT, CDOW, BLM 2009) that supports CDOW research that is designed to better define deer response to applied BMPs and intense, but spatially confined natural gas development. To provide the necessary contrast in experimental design, gas development projects within a pre-defined area of William's Ryan Gulch Unit have been excepted from big game winter timing limitations through year 2013. The exception area encompasses about 11% of the deer severe winter range encompassed by William's leaseholdings in Piceance Basin or about 1% of the total severe winter range available within GMU 22. This project is within that 7680-acre exception area.

Sagebrush habitats, which encompass much of the project area, do not provide suitable nesting substrate for woodland raptors. Discontinuous stringers of woodland communities are located within the vicinity however; these small, isolated stands generally do not support nesting raptors. The nearest known nest (inactive in 2010), is located over 0.50 miles from the proposed location.

Small mammal populations are poorly documented. However, the 20 or so species that are likely to occur in this area are widely distributed and display broad ecological tolerance throughout the Great Basin or Rocky Mountain regions. It is likely that the small mammal community

associated with the project area is represented by relatively few generalized species, such as deer mouse and least chipmunk. No narrowly distributed or highly specialized species or sub-specific populations are known to occur in the project area.

Environmental Consequences of the Proposed Action: The proposed action would initially remove approximately 13.5 acres (associated mainly with pad and pipeline construction) of predominately sagebrush/mixed grassland communities. Following final pipeline reclamation this number would be reduced.

Concentrated activity during the winter months is not expected to have measureable behavior impacts on local deer populations as the exception area comprises about 1% of the total severe winter range available within GMU 22. It is anticipated that the clustered drilling scenario will minimize long-term impacts on mule deer in the area by allowing “drilling-free” refuges adjacent to the exception area available for deer to use.

Environmental Consequences of the No Action Alternative: There would be no direct or indirect influence on terrestrial wildlife or associated habitats.

Mitigation: None.

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Aquatic): Overall, the project area meets the land health standards for animal communities on a landscape scale. The proposed action is expected to incrementally reduce local habitat capacity over the life of the project. As conditioned by reclamation-related provisions, implementation of the proposed action would not interfere with continued landscape level maintenance of the land health standards.

CULTURAL RESOURCES

Affected Environment: The area of the proposed well pad, access route and well tie pipeline is in an area that has had several inventories at the Class III (100% pedestrian) level that cover all or part of the proposed action (Conner 1998, Compliance Dated 10/2/1998. Crum 1980, Compliance Dated 9/11/1980, Schwendler et al. 2008). None of the inventories have identified any surface manifestations of cultural resources in the project area. The closest known cultural resource is approximately 185 meters distant from the proposed boundary of the well pad.

Environmental Consequences of the Proposed Action: The location of the proposed well pad and access will not directly impact any known cultural resources. The nearest site is located approximately 185 meters from the proposed well pad disturbance boundary. The site should not be impacted if mitigation measures are strictly adhered to.

Environmental Consequences of the No Action Alternative: There would be no new impacts to cultural resources under the No Action Alternative.

Mitigation: The operator is responsible for informing all persons who are associated with

the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO).

Within five working days the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary)
- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the AO, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

All personnel are restricted to the working well pad area, access route and well tie pipeline route during working hours.

PALEONTOLOGY

Affected Environment: The proposed well pad, access road and well tie pipeline is located in an area generally mapped as the Uinta Formation (Tweto 1979) which the BLM, WRFO has classified as a PFYC 5 formation. A PFYC 5 classification indicates that the formation is known to produce scientifically important fossil resources (Armstrong and Wolny 1989) and has a high potential to continue to produce important fossil resources.

Environmental Consequences of the Proposed Action: Should it become necessary to excavate into the underlying rock formation to construct the access road, level the well pad, excavate the reserve/blooi/cuttings pit or bury the well tie pipeline there is a potential to impact scientifically noteworthy fossil resources.

Environmental Consequences of the No Action Alternative: There would be no new impacts to fossil resources under the No Action Alternative.

Mitigation: The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear to be of noteworthy scientific interest
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not feasible)

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

If it should become necessary to excavate into the underlying rock formation to construct the access road, level the well pad, excavate the reserve/blooi/cuttings pit or bury the well tie pipeline a paleontological monitor shall be present for all such excavations.

ELEMENTS NOT PRESENT OR NOT AFFECTED:

No flood plains, prime and unique farmlands, exist within the area affected by the proposed action. There are also no known Native American religious or environmental justice concerns associated with the proposed action.

OTHER ELEMENTS: For the following elements, only those brought forward for analysis will be addressed further.

Table 7. Other Elements

Other Elements	NA or Not Present	Applicable or Present, No Impact	Applicable & Present and Brought Forward for Analysis
Visual Resources			X
Fire Management			X
Forest Management			X
Hydrology/Water Rights		X	
Rangeland Management			X
Realty Authorizations			X
Recreation			X
Access and Transportation			X
Geology and Minerals			X
Areas of Environmental Concern	X		
Wilderness	X		
Wild and Scenic Rivers	X		
Cadastral	X		
Socio-Economics		X	
Law Enforcement		X	

VISUAL RESOURCES

Affected Environment: The proposed action is located within a Visual Resource Management (VRM) Class III area. The objective of the VRM III class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape. The nearest development to the proposed action is the Natural Soda solution mine which is approximately .5 miles to the south.

Environmental Consequences of the Proposed Action: The casual observer generally travels Rio Blanco county (RBC) road 5 and this project is not visible from that route. The proposed action will be visible from RBC roads 83, 122, 91, 68, 31, 24 and 24X which all surround the site. The users of these routes are generally oil and gas employees, ranchers, Natural Soda Inc. employees, and hunters during the big game hunting season in the fall months. The proposed action would require the removal of the surface vegetation and the clearing of a few trees. The initial contrast would be during the construction and drill phases. The contrast of the disturbance, equipment profile, color, and activity will have a short term effect on the visual resources. The wellpad post completion will remain on site for a number of years until the wells are deemed non-profitable and are then plugged and abandoned (P&A). The structures left on site post P&A will be visible from all of the surrounding county roads unless they blend in with the colors of the surrounding vegetation. Revegetation of the disturbed areas and painting of all above ground structures with Juniper Green (Standard Environmental Colors Chart CC-001)

would allow the facilities to blend in better with the surrounding vegetation and the objectives of the VRM III classifications would be retained.

Environmental Consequences of the No Action Alternative: Under this alternative there would be no additional disturbances in the area that would attract the attention of the general public and casual observer.

Mitigation: Revegetate the portions of the well pad location that are not deemed necessary for the production and maintenance of the wells. Immediately after installation, paint and regularly maintain all permanent above ground structures (remaining on site greater than 6 months) with Juniper Green from the Standard Environmental Colors Chart CC-001.

FIRE MANAGEMENT

Affected Environment: The proposed area is within the B6 Yellow Creek fire management polygon. The predominant vegetation within this polygon is Pinion/Juniper woodland and Wyoming big sagebrush communities. Fire management is used as a tool to promote a vegetation mosaic representing natural distributions of plant communities of varying successional stages within this B6 polygon. Managing naturally ignited fires of up to 200 acres in size (using AMR, Appropriate Management Response) throughout the polygon is used to promote vegetation mosaic.

Environmental Consequences of the Proposed Action: Due to the existing tree cover of pinion and juniper, there will be a need for the operator to clear some of these trees. If not adequately treated, these trees will result in elevated hazardous fuels conditions and remain on-site for many years. Vegetation removal and soil disturbance could provide an opportunity for noxious weeds and cheatgrass to establish or expand in the area, which would increase fuel loads. The accumulations of dead material are very receptive to fire brands and spotting from wind driven fires and can greatly accelerate the rate of spread of the fire front. The road associated with this project may be used by the general public for a variety of uses, including access for fire wood gathering, hunting and other dispersed recreational activities. Increased public use of an area will nearly always result in an increased potential for man-caused wildland fires. If not treated, the slash and woody debris will create an elevated hazardous dead fuel loading which could pose significant control problems in the event of a wildfire. Additionally there would be greater threat to the public, William's personnel, and fire suppression personnel.

The National Fire Plan calls for "firefighter and public safety" to be the highest priority for all fire management activities. During road construction and well drilling processes associated with the proposed project, fire management may have little choice but to suppress all fires within close proximity to the project area. This aggressive fire suppression response will prevent fire from playing a natural role in creating a vegetation mosaic.

The resulting roads and well pads associated with the proposed project will increase the amount of man-made disturbances of an otherwise continuous fuel bed. If slash and debris resulting from the construction phase of this project are mitigated, these disturbances may provide fire

personnel with opportunities for future fire management decisions. These “fire breaks” may allow for a more indirect suppression response, fire management objectives and line officer concurrence.

Environmental Consequences of the No Action Alternative: There would be no new disturbance that would result in increased fuel loading and cheatgrass.

Mitigation: When working on lands administered by White River Field Office, notify Craig Interagency Dispatch (970-826-5037) in the event of any fire. The reporting party will inform the dispatch center of fire location, size, status, smoke color, aspect, fuel type and contact information. The reporting party, or a representative of, should remain nearby in order to make contact with incoming fire fighting resources to expedite actions taken towards an appropriate management response. The applicant and contractors will not engage in any fire suppression activities outside the approved project area. Accidental ignitions caused by welding, cutting, grinding, etc. will be suppressed by the applicant only if employee safety is not endangered and if the fire can be safely contained using hand tools and portable hand pumps. If chemical fire extinguishers are used the applicant must notify incoming fire resources on extinguisher type and the location of use. Natural ignitions caused by lightning will be managed by federal fire personnel. If a natural ignition occurs within the approved project area, the fire may be initially contained by the applicant only if employee safety is not endangered.

The use of heavy equipment for fire suppression is prohibited, unless authorized by the Field Office Manager.

Slash and woody debris associated from the disturbance shall follow mitigations as written under Forest Management.

FOREST MANAGEMENT

Affected Environment: The proposed well pad is located in a dry exposure pinyon and juniper stand in which four acres have been previously disturbed (i.e., fire or chaining). Dry exposure types occur on primarily slopes with south and west facing aspects. Growth rates are lower in these areas due to soil inability or effectiveness to retain and use precipitation as a result of extensive solar radiation. The pinyon and juniper found in these types of locations are primarily sparse and mature.

Table 8 shows the estimated loss of woodland. Following reclamation of associated disturbances it is expected that pinyon and juniper will invade the site within 70 years and would develop a mature stand within 250-350 years. Under the proposed action about three acres of woodlands would be removed. Erosion potential would increase with the removal of vegetation, especially at sites where tree density and canopy cover has naturally decreased the understory component of grasses, shrubs, and forbs.

Table 8. Acreage in Woodlands

Well Name	Acreage In Woodlands					
	Pad Acres	Access Rd. (Ac)	Pipeline	Acres Disturbed (Total)	Stand Class	Total Cords
RG 23-23-198	.75	.1	N/A	.85	Dry Mature	4

Environmental Consequences of the No Action Alternative: Under this alternative there would be no construction activities resulting in the removal of pinyon and juniper trees.

Mitigation: In accordance with the 1997 White River RMP/ROD page 2-22, all trees removed in the process of construction shall be purchased from the BLM. Trees or shrubs that must be removed for construction or ROW preparation shall be cut down to a stump height of 6 inches or less prior to other heavy equipment operation. Trees removed during construction that are not needed for reclamation purposes shall be cut in four foot lengths (down to 4 inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal by the public or removed for company use. Woody materials required for reclamation shall be stockpiled along the margins of the authorized use area separate from the topsoil piles. Once the disturbance has been recontoured and successfully revegetated, stockpiled woody material shall be scattered across the reclaimed area where the material originated. Redistribution of woody debris will not exceed 20% ground cover. Woody material will be distributed in such a way to avoid large concentrations of heavy fuels and to effectively deter vehicle use.

RANGELAND MANAGEMENT

Affected Environment: The proposed action occurs within the Upper Yellow Creek pasture of the Square S allotment 06027. This allotment is permitted to the LOV Ranch for livestock grazing, which currently occurs in the area of the proposed action during the winter and early spring period. The access road, pipeline, and possibly part of the pad construction will cross one of the laterals of the Yellow Creek Pipeline, project #0204420. This water pipeline was constructed in 1973 to provide dependable upland water sources for cattle in this allotment and is essential for an effective livestock grazing operation.

Environmental Consequences of the Proposed Action: If construction occurs during the period livestock are permitted in this area they will likely avoid the area adjacent to the proposed action during the period of intense noise and activity levels. During this period there is increased risk of injury to livestock. After construction is complete, livestock will likely be minimally affected or even unaffected by the presence of the production equipment.

Environmental Consequences of the No Action Alternative: There will be no change from the present situation.

Mitigation: Prior to any construction, a representative will coordinate through the WRFO NRS who they work with to schedule an appointment with a WRFO Rangeland Management Specialist to conduct a field inspection of this range improvement project and determine how to avoid damaging it and to maintain its function throughout construction and operation of this proposed action.

RECREATION

Affected Environment: The proposed action occurs within the White River Extensive Recreation Management Area (ERMA). BLM manages the ERMA to provide for unstructured recreation activities such as hunting, dispersed camping, hiking, horseback riding, wildlife viewing and off-highway vehicle use.

The proposed action is located within an area that has a Recreation Opportunity Spectrum class of Semi-Primitive Motorized (SPM) based on the common type of recreational users, which are hunters, hikers, mountain bikers and off highway vehicle users. SPM physical and social recreation setting is typically characterized by a natural appearing environment with few administrative controls, low interaction between users but evidence of other users may be present. The SPM recreation experience is characterized by a high probability of isolation from the sights and sounds of humans, providing an environment that offers challenge and risk. The typical recreationist that takes advantage of this type of environment is the upland big game hunter.

Environmental Consequences of the Proposed Action: The public will most likely not recreate in the vicinity of the project area and will disperse elsewhere. If pad development and drilling activities coincide with the various hunting seasons (late August through December), it will most likely disrupt the experience sought by those recreationists. With the introduction of a new wellpad, an increase of traffic could be expected which may increase the likelihood of human interactions, the sights and sounds associated with the human environment and a less naturally appearing environment.

Environmental Consequences of the No Action Alternative: No loss of dispersed recreation potential and no impact to hunting recreationists.

Mitigation: None.

ACCESS AND TRANSPORTATION

Affected Environment: Access to the proposed site is RBC 31 to the Natural Soda solution mine then along an existing unnumbered BLM road to the north. Both roads are primarily used by personnel involved with the Natural Soda solution mining operations and the occasional ranching operation. The unnumbered BLM road begins at a staging area (bone yard) for the Natural Soda solution mining operation.

Environmental Consequences of the Proposed Action: The increases in traffic through the Natural Soda facilities will disrupt the loading and unloading of semi-trucks and trailers as well as reduce the areas available for parking them. The staging area will require cleaning and/or removal in order for the expected traffic to traverse the area without causing damage to the transporters and/or staged materials. The unnumbered BLM road will need to be improved and unless the surface is packed and graveled, the soils may breakdown due to the amount and type of expected traffic. The broken down soils may become airborne causing difficulty with visibility. The increased traffic and dust may attract the attention of the general public that may attempt to travel the route.

Environmental Consequences of the No Action Alternative: There would be no improved routes beyond the Natural Soda solution mining facilities that would draw the attention of the public.

Mitigation: Construct and maintain the access route in accordance to the Gold Book standards Fourth Edition 2007. Apply a dust abatement measures when the dust begins to cause low visibility situations.

REALTY AUTHORIZATIONS

Affected Environment: The access road will be located within the Ryan Gulch Unit boundary. The pipelines will be permitted and installed by Bargath, Inc., a wholly owned subsidiary of Williams Production RMT Co. (Williams); therefore, a ROW is required for an up to 16-inch natural gas pipeline and two 4-inch water lines. A temporary use permit is required for the additional 30 feet width during pipeline construction. BLM Road #1148, which is also authorized in road ROW COC67003 to BOPCO, will be crossed by the pipeline route, and a portion of the road will be used by both Williams and BOPCO to access their wells.

Environmental Consequences of the Proposed Action: The natural gas pipeline and water lines will be constructed within the same trench. Pipeline ROW COC74566 will be 4,517 feet long with a permanent width of 30 feet, containing 3.11 acres, more or less. Water lines ROW COC74567 will be 4,517 feet long with a width of 15 feet within the associated pipeline ROW, containing 1.56 acres, more or less. Temporary Use Permit COC74566-01 will be 4,517 feet long with a width of 30 feet, containing 3.11 acres, more or less. To avoid impacts to existing ROWs, Bargath, Inc. should coordinate with BOPCO prior to construction of the pipeline across BLM Road #1148, and Williams will coordinate with BOPCO regarding maintenance of the shared portion of the access road.

Environmental Consequences of the No Action Alternative: The pipeline and water lines would not be built, and the associated rights-of-way would not be issued.

Mitigation: All activities shall comply with applicable local, state, and federal laws, statutes, regulations, standards, and implementation plans. This would include acquiring all required State and Rio Blanco County permits, implementing all applicable mitigation measures required by each permit, and effectively coordinating with existing ROW holders.

Williams and Bargath will coordinate with BOPCO regarding maintenance of the shared portion of the access road and prior to pipeline construction.

GEOLOGY AND MINERALS

Affected Environment: The surface geologic formation of the proposed well pad location is Uinta. William's targeted zone is located in the Mesaverde/upper Mancos with a total depth of greater than 12,000 feet from surface. During drilling, potential water, oil shale, sodium, and gas zones will be encountered from surface to the targeted zone. Fresh water aquifers zones will be encountered during drilling are in the upper portion (2,000 feet) of the wells. These are commonly known as: the Perched in the Uinta, the A-groove, B-groove and the Dissolution Surface in the Green River formation. The Green River aquifer zones and portions of the Wasatch formation are known for difficulties in drilling and cementing.

Williams' proposed wells and well pad are located on Natural Soda Inc.'s (NSI) Federal sodium lease COC-0118327. NSI is an active mining operation that solution mines a bedded nahcolite (sodium bicarbonate) horizon identified as the Boies Bed in the Green River Formation at a depth of approximately 1,950 feet from the surface. There is a facies change from sodium bicarbonate to sodium chloride in the Boies Bed at the proposed well pad location. Proposed access to the well is through the Natural Soda Mine site.

Federal sodium lease COC-118327 became effective July 6, 1971 and commencement of solution mining the nahcolite resource in the Green River formation began in 1991. According to the approved NSI mine plan, NSI is required by the EPA, BLM, and Colorado Department of Reclamation Mining and Safety to monitor the water quality and hydrostatic head of each of these aquifers in and around the mining operations. The aquifers are monitored to determine if the solution mining activities have any effect on the aquifers. Monitoring the hydrostatic head of the dissolution surface is used in daily operations to balance the injection and recovery rates of the mining solutions. The proposed well pad is located less than 0.5 mile west and north, geologically cross gradient, of NSI's dedicated down gradient water monitoring wells.

The well pad is located on Federal oil and gas lease COC-060732 which was effective October 1, 1997 and is part of the Ryan Gulch Exploratory Oil and Gas Unit COC-068239X. All of the proposed wells are located within the Ryan Gulch Unit.

Environmental Consequences of the Proposed Action: Drilling and completion of all the proposed wells may affect the aquifers in the Green River formation if there is loss of circulation or difficulties encountered cementing the surface casing. The cementing and completion procedure of the proposed action isolates the formations, if properly implemented, and will prevent the migration of gas, water, and oil between formations. Drilling of the wells in this area of a facies change from sodium bicarbonate to sodium chloride will not affect the recovery of nahcolite from the Boies Bed since sodium chloride is a contaminate in the solution mining process and areas containing sodium chloride are avoided. Development of these wells will deplete the hydrocarbon resources in the targeted formation.

Environmental Consequences of the No Action Alternative: The natural gas resources in the targeted zone would not be recovered at this time.

Mitigation: NSI should be notified by Williams of their plans to drill the proposed wells prior to the commencement of surface disturbing activities to coordinate the mobilization of equipment to the drill site and drilling operations to minimize interference with NSI operations.

To prove ownership of any aquifer contamination or drilling influence a fluorescent dye other than Rhodamin WT, should be added to all drilling fluids used through the Green River formation.

Williams should inform NSI during drilling and cementing of the surface casing and during fracing operations.

CUMULATIVE IMPACTS SUMMARY:

The Proposed Action is consistent with the scope of impacts addressed in the White River ROD/RMP. The cumulative impacts of oil and gas activities are addressed in the White River ROD/RMP for each resource value that would be affected by the Proposed Action.

REFERENCES CITED:

Armstrong, Harley J. and David G. Wolny

1989 Paleontological Resources of Northwest Colorado: a Regional Analysis. Museum of Western Colorado, Grand Junction, Colorado.

Conner, Carl E.

1998 Class III Cultural Resource Inventory Report for Phase II of a Proposed 138 kV Transmission Line in Piceance Creek Area of Rio Blanco County, Colorado for White River Electric Association. Grand River Institute, Grand Junction, Colorado. (98-11-07) (rb.lm.r354)

Crum, Sally M.

1980 Cultural Resources Survey for Multi Mineral Corporation in the Piceance Basin. Grand River Institute, Grand Junction, Colorado. (80-11-15)

Schwendler, Rebecca, Sarah Baer, Karen Reed, Scott Phillips, Scott Slessman, Mathew Bandy, Nicole Kromarck, Scott Bowen, Max Wolk, Caryn M. Berg, Paul Burnett, Tom Witt, Sean Doyle, Michelle Delmas, Michael Cregger, John Kennedy, Judy Cooper, Zonna Barnes, Amanda Cohen, Cynthia Manseau, Michael Retter, Dan Shosky, and Erin Salisbury.

2008 A Class III cultural Resource Inventory for the Ryan Gulch 3-D Geophysical Exploration Project, Rio Blanco County, Colorado. SWCA Environmental Consultants, Broomfield, Colorado. (09-127-01) (RB.LM.R1085)

Tweto, Ogden

1979 Geologic Map of Colorado. United States Geologic Survey, Department of the Interior, Reston, Virginia.

Williams Production RMT, Colorado Division of Wildlife and Bureau of Land Management
2009 Memorandum of Understanding for Alternative Wildlife Mitigation Practices.

INTERDISCIPLINARY REVIEW:

Table 9. Interdisciplinary Team

Name	Title	Area of Responsibility	Date Signed
Bob Lange	Hydrologist	Air Quality, Water Quality, Surface and Ground Hydrology and Water Rights, Soils	10/13/2010
Jill Schulte	Botanist	Areas of Critical Environmental Concern, Threatened and Endangered Plant Species	9/16/2010
Michael Selle	Archeologist	Cultural Resources, Paleontological Resources	10/4/2010
Mary Taylor	Rangeland Management Specialist	Invasive, Non-Native Species, Vegetation , Rangeland Management	10/26/2010
Lisa Belmonte	Wildlife Biologist	Migratory Birds, Threatened, Endangered and Sensitive Animal Species, Terrestrial and Aquatic Wildlife, Wetlands and Riparian Zones	10/20/10
Christina Barlow	Natural Resource Specialist/HazMat Coordinator	Wastes, Hazardous or Solid	9/15/2010
Jim Michels	Outdoor Recreation Planner	Wilderness, Access and Transportation, Recreation	9/24/10
Jim Michels	Forester/ Fire / Fuels Technician	Fire Management, Forest Management	9/24/10
Paul Daggett	Mining Engineer	Geology and Minerals	10/01/2010
Stacey Burke	Realty Specialist	Realty Authorizations	10/04/2010
Jim Michels	Natural Resource Specialist / Outdoor Recreation Planner	Visual Resources	9/24/10
Melissa J. Kindall	Range Technician	Wild Horses	09/21/2010

**Finding of No Significant Impact/Decision Record
(FONSI/DR)**

DOI-BLM-CO-110-2010-0226-EA

FINDING OF NO SIGNIFICANT IMPACT (FONSI)/RATIONALE: The environmental assessment and analysis of the environmental effects of the proposed action have been reviewed. The approved mitigation measures (listed below) result in a Finding of No Significant Impact on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the proposed action.

Decision/Rationale: The environmental analysis indicates that the change in the environment associated with the proposed action is limited in both duration and intensity; that is, the proposed oil and gas development will have a life cycle of approximately thirty years at which time the land will be re-contoured and re-vegetated. The Federal Land Policy Management Act provides that the public lands be managed in a manner that recognizes the Nation's need for domestic sources of natural resources and utilized in the combination that will best meet the present and future needs of the American people, 43 U.S.C. §§1701(a) (12) and 1702 (c). It is therefore my decision to approve the Application(s) for Permit(s) to Drill and permit the associated and ancillary oil and gas development, e.g. pads, roads, pipelines, etc.

This approval is subject to the following conditions of approval:

MITIGATION MEASURES:

A. Timing Limitations

- 1) The operator shall apply proper pre-planning and plan all activities and operations in a manner so as to avoid infringing on any timing limitations; without the need to apply for exceptions to the specified timing limitations.
- 2) If construction/development occurs between April 15 and November 15, the operator will be required to water or surface access roads to reduce airborne dust and damage to roadside vegetation communities.

B. Pre-Construction Activities and Notifications

- 3) The operator will be responsible for complying with all local, state, and federal regulations as well as providing documentation to the BLM that they have done so.
- 4) The *designated Natural Resource Specialist* will be notified 24 hours prior to beginning all construction-related activities associated with this project that result in disturbance of surface soils via email or by phone. Construction-related activities may include, but are not limited to, pad and road construction, clearing pipeline corridors, trenching, etc. Notification of all construction-related activities, regardless of size, that result in disturbance of surface soils as a result of this project is required.

- 5) Prior to any construction, a representative will coordinate through the WRFO NRS who they work with to schedule an appointment with a WRFO Rangeland Management Specialist to conduct a field inspection of this range improvement project and determine how to avoid damaging it and to maintain its function throughout construction and operation of this proposed action.

C. Post-Construction Notifications

- 6) In an attempt to track interim and final reclamation of federal actions related to the development of federal mineral resources, the operator shall provide the *designated Natural Resource Specialist* with geospatial data in a format compatible with the WRFO's ESRI ArcGIS Geographic Information System (GIS); GIS point and polygon features. These data will be used to accurately locate and identify all geographic as-built (i.e., constructed and design implemented) features associated with this project and included in the Application for Permit to Drill (APD) or Sundry Notice (SN), as appropriate.
- These data shall be submitted within 60 days of construction completion. If the operator is unable to submit the required information within the specified time period, the operator shall notify the *designated Natural Resource Specialist* via email or by phone, and provide justification supporting an extension of the required data submission time period.
 - GIS *polygon* features may include, but are not limited to; full well pad footprints (including all stormwater and design features), constructed access roads/widths, existing roads that were upgraded/widths, and pipeline corridors.
 - Acceptable data formats are: (1) corrected global positioning system (GPS) files with sub-meter accuracy or better; (2) ESRI shapefiles or geodatabases; or, (3) AutoCAD .dwg or .dxf files. If possible, both (2) and (3) should be submitted for each as-built feature. Geospatial data must be submitted in UTM Zone 13N, NAD 83, in units of meters. Data may be submitted as: (1) an email attachment; or (2) on a standard compact disk (CD) in compressed (WinZip only), or uncompressed format. All data shall include metadata, for each submitted layer, that conforms to the *Content Standards for Digital Geospatial Metadata* from the Federal Geographic Data Committee standards. Questions shall be directed to WRFO BLM GIS staff at (970) 878-3800.

If the operator is unable to send the data electronically, the operator shall submit the data on compact disk(s) to:

BLM, White River Field Office

Attn: Natural Resource Specialist

220 East Market Street

Meeker, Colorado 81641

Internal and external review of the reporting process and the adequacy of the associated information to meet established goals will be conducted on an on-going basis. New information or changes in the reporting process will be incorporated into the request, as appropriate. Subsequent permit application processing may be dependent upon successful execution of this request, as stated above.

- 7) If for any reason the location or orientation of the geographic feature associated with the **proposed action changes**, the operator shall submit updated GIS “As-Built” data to *designated Natural Resource Specialist* within 7 calendar days of the change. This information shall be **submitted via Sundry Notice**.

D. Pre & Post-Drilling Notifications

- 8) The *designated Natural Resource Specialist* will be notified 24 hours prior to well spud (Breaking ground for drilling surface casing) via email or phone.
- 9) The *designated Natural Resource Specialist* will be notified 24 hours prior to commencing Completion operations via email or phone.

E. Resource-Specific Mitigation During Construction, Drilling, and Production:

Roads and Access

- 10) Construct and maintain the access route in accordance to the Gold Book standards Fourth Edition 2007. Apply a dust abatement measures when the dust begins to cause low visibility situations.
- 11) All personal are restricted to the working well pad area, access route and well tie pipeline route during working hours.

Geology and Minerals

- 12) NSI should be notified by Williams of their plans to drill the proposed wells prior to the commencement of surface disturbing activities to coordinate the mobilization of equipment to the drill site and drilling operations to minimize interference with NSI operations.
- 13) To prove ownership of any aquifer contamination or drilling influence a fluorescent dye other than Rhodamin WT, should be added to all drilling fluids used through the Green River formation.
- 14) Williams should inform NSI during drilling and cementing of the surface casing and during fracing operations.

Visual Resources

- 15) Revegetate the portions of the well pad location that are not deemed necessary for the production and maintenance of the wells. Immediately after installation, paint and regularly maintain all permanent above ground structures (remaining on site greater than 6 months) with Juniper Green from the Standard Environmental Colors Chart CC-001.

Fire Management

16) When working on lands administered by White River Field Office, notify Craig Interagency Dispatch (970-826-5037) in the event of any fire. The reporting party will inform the dispatch center of fire location, size, status, smoke color, aspect, fuel type and contact information. The reporting party, or a representative of, should remain nearby in order to make contact with incoming fire fighting resources to expedite actions taken towards an appropriate management response. The applicant and contractors will not engage in any fire suppression activities outside the approved project area. Accidental ignitions caused by welding, cutting, grinding, etc. will be suppressed by the applicant only if employee safety is not endangered and if the fire can be safely contained using hand tools and portable hand pumps. If chemical fire extinguishers are used the applicant must notify incoming fire resources on extinguisher type and the location of use. Natural ignitions caused by lightning will be managed by federal fire personnel. If a natural ignition occurs within the approved project area, the fire may be initially contained by the applicant only if employee safety is not endangered. The use of heavy equipment for fire suppression is prohibited, unless authorized by the Field Office Manager.

Cultural Resources

17) The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary)
- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

18) Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the AO, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR

10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

- 19) If it should become necessary to excavate into the underlying rock formation to construct the access road, level the well pad, excavate the reserve/blooi/cuttings pit or bury the well tie pipeline a paleontological monitor shall be present for all such excavations.
- 20) The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:
 - whether the materials appear to be of noteworthy scientific interest
 - the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not feasible)

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

Water Quality

- 21) Locate culverts or drainage dips in such a manner as to avoid discharge onto unstable terrain such as headwalls or slumps. Provide adequate spacing to avoid accumulation of water in ditches or road surfaces. Install culverts with adequate armoring of inlet and outlet. Patrol areas susceptible to road or watershed damage during periods of high runoff.
- 22) Keep road inlet and outlet ditches, catchbasins, and culverts free of obstructions, particularly before and during spring run-off. Routine machine-cleaning of ditches should be kept to a minimum during wet weather. Leave the disturbed area in a condition that provides drainage with no additional maintenance.
- 23) Culverts and waterbars should be installed according to BLM Manual 9113 standards and sized for the 10-year storm event with no static head and to pass a 25-year event without failing.

Wildlife

- 24) The operator shall prevent use by migratory birds of reserve pits that store or are expected to store fluids which may pose a risk to such birds (e.g., migratory waterfowl, shorebirds, wading birds and raptors) during completion and after completion activities have ceased.

Methods may include netting or other alternative methods that effectively prevent use and that meet BLM approval. It will be the responsibility of the operator to notify the BLM of the method that will be used to prevent use two weeks prior to when completion activities are expected to begin. The BLM approved method will be applied within 24 hours after completion.

Air Quality

- 25) All access roads will be treated with water and/or a chemical dust suppressant during construction and drilling activities so that there is not a visible dust trail behind vehicles. All vehicles will abide by company or public speed restrictions during all activities. If water is used as a dust suppressant, there should be no traces of oil or solvents in the water and it should be properly permitted for this use by the State of Colorado. Only water needed for abating dust should be applied; dust abatement should not be used as a water disposal option under any circumstances.

Soils

- 26) All construction and drilling activity shall cease when soils or road surfaces become saturated to a depth of three inches unless there are safety concerns or if activities are otherwise approved by the Authorized Officer.
- 27) In order to protect rangeland health standards for soils, erosion features such as riling, gullyng, piping and mass wasting on the surface disturbance or adjacent to the surface disturbance as a result of this action will be addressed immediately after observation by contacting the AO and submitting a plan to assure successful soil stabilization with BMPs to address erosion problems.

Vegetation, Reclamation, and Weed Control

- 28) All seed tags will be submitted to the *designated Natural Resource Specialist* within 14 calendar days from the time the seeding activities have ended via Sundry Notice. The sundry will include the purpose of the seeding activity (i.e., seeding well pad cut and fill slopes, seeding pipeline corridor, etc.). In addition, the SN will include the well or well pad number associated with the seeding activity, if applicable, the name of the contractor that performed the work, his or her phone number, the method used to apply the seed (e.g., broadcast, hydro-seeded, drilled), whether the seeding activity represents interim or final reclamation, an estimate of the total acres seeded, an attached map that clearly identifies all disturbed areas that were seeded, and the date the seed was applied.

- 29) Promptly revegetate all disturbed areas not necessary for production including roadside and location cut and fill slopes with Native Seed mix #2. Woody debris will not be scattered on the pipeline until after seeding operations are completed.

Seed mixture rates are Pure Live Seed (PLS) pounds per acre. Drill seeding is the preferred method of application.

Species (Variety)	Lbs. PLS per Acre
Western wheatgrass (Rosanna)	2
Indian ricegrass (Nezpar)	1
Bluebunch wheatgrass (Whitmar)	2
Thickspike wheatgrass (Critana)	2
Green needlegrass (Lodorm)	1
Utah sweetvetch	0.5

- 30) The operator will be required to monitor the project area for the life of the project and eradicate/control noxious and invasive species which occur on site using materials and methods approved in advance by the Authorized Officer.
- 31) In accordance with the 1997 White River RMP/ROD page 2-22, all trees removed in the process of construction shall be purchased from the BLM. Trees or shrubs that must be removed for construction or right-of-way (ROW) preparation shall be cut down to a stump height of 6 inches or less prior to other heavy equipment operation. Trees removed during construction that are not needed for reclamation purposes shall be cut in four foot lengths (down to 4 inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal by the public or removed for company use. Woody materials required for reclamation shall be stockpiled along the margins of the authorized use area separate from the topsoil piles. Once the disturbance has been recontoured and successfully revegetated, stockpiled woody material shall be scattered across the reclaimed area where the material originated. Redistribution of woody debris will not exceed 20% ground cover. Woody material will be distributed in such a way to avoid large concentrations of heavy fuels and to effectively deter vehicle use.
- 32) All seed tags will be submitted to the *designated Natural Resource Specialist* within 14 calendar days from the time the seeding activities have ended via SN. The sundry will include the purpose of the seeding activity (i.e., seeding well pad cut and fill slopes, seeding pipeline corridor, etc.). In addition, the SN will include the well or well pad number associated with the seeding activity, if applicable, the name of the contractor that performed the work, his or her phone number, the method used to apply the seed (e.g., broadcast, hydro-seeded, drilled), whether the seeding activity represents interim or final reclamation, an estimate of the total acres seeded, and an attached map that clearly identifies all disturbed areas that were seeded, and the date the seed was applied.

Wastes

- 33) All lessees and/or operators shall comply with all federal, state and/or local laws, rules, and regulations, including but not limited to onshore orders and notices to lessees, addressing the emission of and/or the handling, use, and release of any substance that poses a risk of harm to human health or the environment.
- 34) All lessees and/or operators shall employ, maintain, and periodically update to the best available technology(s) aimed at reducing emissions, fresh water use and hazardous material utilization, production and releases through all phases of oil and gas exploration, development, and production.
- 35) When drilling to set the surface casings, drilling fluid will be composed of fresh water, bentonite and/or a benign lost circulation material only – that is a **lost circulation material that does not pose a risk of harm to human health or the environment**, (e.g. cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs or cotton hulls).
- 36) All substances that pose a risk of harm to human health or the environment shall be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to produced water, shall be stored in appropriate containers and in secondary containment systems at 110% of the largest vessel's capacity. Secondary fluid containment systems, including but not limited to tank batteries shall be lined with a minimum 24 mil impermeable liner.
- 37) The operator shall submit a current Spill Prevention Control and Countermeasures Plan and a current spill/release contingency plan to the Bureau of Land Management's White River Field Office prior to engaging in construction activities.
- 38) Construction sites and all facilities shall be maintained in a sanitary condition at all times; waste materials shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.
- 39) As reasonable and prudent lessees/operators in the oil and gas industry, acting in good faith, all lessees/operators will comply with the reporting requirements of Notice to Lessees-#3A; and, regardless of a substance's status as exempt or nonexempt and regardless of fault, will report all emissions or releases that may pose a risk of harm to human health or the environment to the Bureau of Land Management's White River Field Office at (970) 878-3800.
- 40) As reasonable and prudent lessees/operators in the oil and gas industry, acting in good faith, all lessees/operators will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator fails, refuses or neglects to provide for

the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the Bureau of Land Management's White River Field Office may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.

- 41) With the acceptance of an authorization, the commencement of operations under an authorization, or the running of thirty calendar days from the issuance of an authorization, whichever occurs first, and during oil and gas exploration, development and production under an authorization, the lessee/operator, and through the lessee/operator, its agents, employees, subcontractors, successors and assigns, stipulate and agree to indemnify, defend and hold harmless the United States Government, its agencies, and employees from all liability associated with the emission or release of substances that pose a risk to human health or the environment.

F. Pre-Reclamation Notification

- 42) The *designated Natural Resource Specialist* will be notified 24 hours prior to beginning all reclamation activities associated with this project via email or by phone. Reclamation activities may include, but are not limited to, seed bed preparation that requires disturbance of surface soils, seeding, constructing exclosures (e.g., fences) to exclude livestock from reclaimed areas.

G. Information Sharing & Reclamation Monitoring

- 43) The Reclamation Status Report will be submitted electronically via email and as a hard-copy to WRFO Reclamation Coordinator, Brett Smithers (brett_smithers@blm.gov). Please submit the hardcopy to:

BLM, White River Field Office
220 East Market Street
Meeker, Colorado 81641
Attn: Brett Smithers

The Reclamation Status Report will be submitted annually for all actions that require disturbance of surface soils on BLM-administered lands as a result of the proposed action. Actions may include, but are not limited to, well pad and road construction, construction of ancillary facilities, or power line and pipeline construction. The Reclamation Status Report will be submitted by September 30th of each calendar year, and will include the well number, API number, legal description, UTM coordinates (using the NAD83 datum, Zone 13N coordinate system), project description (e.g., well pad, pipeline, etc.), reclamation status (e.g., Phase I Interim, Phase II Interim, or Final), whether the well pad or pipeline has been re-vegetated and/or re-contoured, percent of the disturbed area that has been reclaimed, method used to estimate percent area reclaimed (e.g., qualitative or quantitative), technique used to estimate percent area reclaimed (e.g., ocular, line-intercept, etc.), date seeded, photos of the reclaimed site, estimate of acres seeded, seeding method (e.g., broadcast, drilled, hydro-seeded, etc.), and contact information for the person(s) responsible for developing the report.

The report will be accompanied with maps and GIS data showing each discrete point (i.e., well pad), polygon (i.e., area where seed was applied for Phase I and/or Phase II interim reclamation or area reclaimed for final reclamation), or polyline (i.e., pipeline) feature that was included in the report. Geospatial data shall be submitted: for each completed activity electronically to the designated BLM staff person responsible for the initial request and in accordance with WRFO geospatial data submittal standards (available from WRFO GIS Staff, or on the WRFO website). Internal and external review of the WRFO Reclamation Status Report, and the process used to acquire the necessary information will be conducted annually, and new information or changes in the reporting process will be incorporated into the report.

- 44) The operator will be required to meet with the WRFO reclamation staff in March or April of each calendar year and present a comprehensive work plan. The purpose of the plan is to provide information pertaining to reclamation activities that are expected to occur during the current growing season. Operators shall also provide a map that shows all reclamation sites where some form of reclamation activity is expected to occur during the current growing season.

H. Final Reclamation

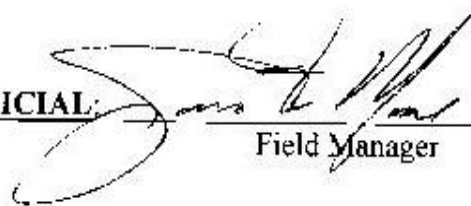
- 45) Upon final abandonment of the well pads, new access roads, and completion of pipelines, 100% of all disturbed surfaces will be restored to pre-construction contours, and revegetated with a BLM preferred seed mixture. Natural drainage patterns will be restored and stabilized with a combination of vegetative (seeding) and non-vegetative (straw bales, woody debris, straw waddles, biodegradable fabrics...) techniques. All available woody debris will be pulled back over recontoured areas (woody debris will not account for more than 20% of total surface cover) to help stabilize soils, trap moisture, and provide cover for vegetation. Monitoring and additional reclamation efforts will persist until reclamation is proven successful (as determined by the BLM).

COMPLIANCE/MONITORING: On-going compliance inspections and monitoring of the well sites, access road, and pipeline will be conducted by the BLM White River Field Office staff during and after construction. Specific mitigation developed in this document will be followed. The operator will be notified of compliance related issues in writing, and depending on the nature of the issue(s), will be provided 30 days to resolve such issues.

NAME OF PREPARER: Christina Barlow

NAME OF ENVIRONMENTAL COORDINATOR: Kristin Bowen

SIGNATURE OF AUTHORIZED OFFICIAL:



Field Manager

DATE SIGNED:

11/23/2010